

DOCKET NO.: 137159.00101 (52922-11)
Application No.: 10/595,982
Response to Office Action dated: April 26, 2010

REMARKS

This communication is responsive to the non-final Office Action dated April 26, 2010 (Part of Paper No./Mail Date 20100413). Claims 1-20 are pending in the present application and stand rejected following the Office Action dated April 26, 2010 for the reasons explained more fully below. Claims 1, 3-5, and 10-20 have been amended in the present response. New claims 21-27 have been added. It is respectfully submitted that no new matter has been added. After entry of the present claim amendments, claims 1-27 will be pending.

Although Applicant does not necessarily concur with the grounds of rejection of the claims noted in the outstanding Office Action, Applicant has nonetheless amended to claims to more clearly recite features of the present invention and distinguish the claimed subject matter over the prior art of record, as explained more fully below. Applicant has also made amendments to the specification, drawings, and claims to overcome various objections / rejections noted in the Office Action. Reconsideration of the objections to the specification, drawings and claims, as well as, the claim rejections is requested in view of the above amendments and following remarks.

In the Specification:

The paragraph beginning on page 6, line 20 of the specification has been amended to delete reference to FIG. 10, as suggested by the examiner. FIG. 10 does not exist in the drawings.

The specification has also been amended to delete reference numerals “26” and “30.” Original reference numeral 26 refers to an aperture in the coupling tongue 12, which aligns with apertures (not shown) on receiver 24, to receive coupling pin 28. Original reference numeral 30 refers to the axially aligned apertures formed in legs 15 and 17 and which are aligned with a corresponding aperture (not shown) on the coupling tongue 12, to receive hitch pin 18. Although not shown in any of the views of the figures, it is respectfully submitted that apertures “26” and “30” are obvious to one of ordinary skill in the art. The specification has been amended to indicate these apertures are not shown.

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In the Drawings:

FIG. 1 of the drawings has been amended to show reference numeral “22” for the coupling socket. A replacement sheet is provided herewith for Sheet 1 of 4 to show the amendment to FIG. 1.

Claim Objections:

Claims 1, 3-5 and 10-20 have been amended to improve and clarify the claim language, as suggested by the examiner on page 2-3 of the Office Action. Regarding the objection to claims 15-20 at line 6, it is submitted that the base claim(s) from which claims 15-20 depend recite the opening of the hitch assembly limitation. Therefore, recitation of “the” opening in original claims 15-20 has proper antecedent basis. Accordingly, withdrawal of the claim objections is solicited.

Claim Rejections Under 35 U.S.C. §102(b):

In the Office Action, claims 1, 3-5, 15 and 17 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Lloyd (U.S. Patent Application Publication No. 2002/0140206). Applicant does not agree with the above-identified grounds of rejection of the claims, however, Applicant has nonetheless amended to claims to more clearly recite certain features of the present invention and distinguish the claimed subject matter over the Lloyd reference. Reconsideration of this rejection is requested in view of the amendments to the claims and the following remarks.

Lloyd discloses a trailer hitch towing member adapter operable to connect a hook or chain double clevis to a tubular trailer hitch receiver. According to Lloyd, FIG. 4 shows a preferred embodiment of the invention including an adapter 60 having a cylindrical body 62 from which protrudes a plate 64. Plate 64 has a hole in which to receive a fastener of a towing implement, such as bolt 67 of slip hook 69. Hook 69 is allowed to rotate and align with a load direction from a

towing member. Lloyd makes a general statement that the invention is typically made from steel, although other metals and materials having sufficient strength and durability may be used. (see Lloyd at [0034] and [0035].

The examiner cites to FIG. 2 of Lloyd. This figure shows a commercially available adaptor 44 for attaching a D-ring 46 to a receiver 21. The D-ring 46 shown in FIG. 2 of Lloyd is round and would have a circular cross-section over most of the D-ring. The D-ring of Lloyd is not flat along its length, but rather is only flat at the ends. The D-ring of Lloyd is round at its load bearing surface and hence includes a single pressure point under load. (See Lloyd at FIG. 2 and [0035]).

In contrast, the claim subject matter is directed to an improved hitch assembly that: is strong and sturdy yet lightweight when compared to conventional hitch assemblies; comprises a simple design and construction; is easy to use; and will not break under most circumstances.

The design and construction of the U-shaped clevis provides an improvement over a conventional round clevis. For example, as shown and described in the present application, a characteristic feature of the clevis 16 is that in cross section it is significantly wider than it is thick thereby being flat or planar in cross-section. Because it is planar or flat in cross-section, the interaction between legs 15 and 17 of clevis 16 and the coupling tongue 12 occurs over a larger surface area than conventional D-rings or shackles of similar length. Another advantage of a clevis that is flat where it interacts with the tow strap, as opposed to the D-ring of Lloyd, is that the stress force on the eye of the tow strap is distributed over a larger surface area and to multiple pressure points, as opposed to one pressure point. (See e.g., present application at page 5, line 19 – page 6, line 2). This feature is claimed in amended independent claim 1 which recites, in part:

a u-shaped clevis with a first clevis end and a second clevis end, the u-shaped clevis being significantly wider than it is thick and hence substantially flat in cross section; the u-shaped clevis further comprising an aperture at the first clevis end and an aperture at the second clevis end, the aperture at the first clevis end being positioned above the second aperture of the coupling tongue and the aperture at the second clevis end being positioned below the second aperture of the coupling tongue, said u-shaped clevis being pivotally coupled to the second end of the coupling tongue with the hitch pin; (emphasis added).

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Support of the amendment to independent claim 1 may be found, for example, at page 5, line 19 – page 6, line 2.

Also and with respect to claim 3, Lloyd does not disclose a wear plate. In the Office Action, the examiner refers to part 48 of Lloyd. Part 48 in Lloyd, however, is the mounting plate of the D-ring 46. The mounting plate is not a wear plate. In addition, claim 3 has been amended to further clarify the structure and location of the wear plates of the present invention. Amended claim 3 recites, in part, wear plates on inside surfaces of the first and second clevis ends of the U-shaped clevis in the areas where the hitch pin is inserted. Support of this amendment may be found on page 6, lines 3-18; and Figures 1, 3-5, 7 of the present application.

Further, Lloyd does not disclose a sling adaptor as recited in claim 4. In the Office Action, the examiner refers to part 46 of Lloyd as allegedly disclosing this claim element. Part 46 in Lloyd, however, refers to D-ring 46. D-ring 46 is not a sling adaptor, nor does it include a sling adaptor. In addition, claim 4 has been amended to further clarify the structure and location of the sling adaptor of the present invention. Amended claim 4 recites, in part, a sling adapter having a curved surface disposed in a closed end of the U-shaped clevis. Support of this amendment may be found on page 8, lines 8-19; and Figures 5-7 of the present application.

Lloyd does not disclose these advantageous features of the clevis. Accordingly, because each and every feature recited in independent claim 1 is not found (or even suggested) in the Lloyd patent, there can be no anticipation under 35 U.S.C. §102(b). The claimed subject matter of claims 3 and 4 is also not disclosed or taught by Lloyd. Accordingly, Applicant respectfully requests that the examiner reconsider and withdraw the rejection of claims 1, 3-5, 15 and 17 under 35 U.S.C. §102(b).

Claim Rejections Under 35 U.S.C. §103(a):

In the Office Action: claims 6-12, 14, 18 and 20 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Lloyd in view of Powell (U.S. Patent No. 6,129,371); claims 2

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and 16 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Lloyd in view of Klinkman (U.S. Patent No. 5,431,425); and claims 13 and 19 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Lloyd in view of Klinkman (as discussed above) in further view of Powell. Applicant traverses these rejections based, in part, on the above claim amendments and arguments with respect to the Lloyd reference, and further in view of the additional remarks that follow. As such, reconsideration and withdrawal of this rejection is requested.

As noted above, various dependent claims are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Lloyd in combination with various other secondary references. For the reasons provided above with reference to the amended independent claim 1, Applicant traverses the rejection of select dependent claims as allegedly unpatentable over the art of record.

Applicants respectfully submit that that various modifications alleged by the examiner still would not have produced any invention recited in the claims rejected under 35 U.S.C. 103(a). These claims include all of the limitations of the respective base claim (independent claim 1). As noted above, the Lloyd reference fails to disclose or suggest the subject matter recited in the amended base claim, and the additional references cited in the above rejections under 35 U.S.C. 103(a) do not remedy the deficiencies noted in the remarks above with respect to the rejections under 35 U.S.C. 102(b). In light of the forgoing claim amendments and arguments, it is respectfully submitted that the rejections for alleged unpatentability are either moot and/or improper. Accordingly, Applicant respectfully requests that the examiner reconsider and withdraw the claim rejections under 35 U.S.C. § 103(a) for this reason.

Secondary Consideration of Non-Obviousness:

Even assuming that the examiner has established a *prima facie* case of obviousness, and Applicant does not admit or concede that a *prima facie* case of obviousness has been established, Applicant may present arguments and/or evidence to rebut the *prima facie* case. See, e.g., *In re Dillon*, 919 F.2d 688, 692, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990). Rebuttal evidence and arguments can be presented in the specification, *In re Soni*, 54 F.3d 746, 750, 34 USPQ2d 1684,

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1687 (Fed. Cir. 1995), by counsel, *In re Chu*, 66 F.3d 292, 299, 36 USPQ2d 1089, 1094-95 (Fed. Cir. 1995), or by way of an affidavit or declaration under 37 CFR 1.132, e.g., *Soni*, 54 F.3d at 750, 34 USPQ2d at 1687; *In re Piasecki*, 745 F.2d 1468, 1474, 223 USPQ 785, 789-90 (Fed. Cir. 1984). All three types of evidence are present in the present application and herein.

Rebuttal evidence may include evidence of “secondary considerations.” See *Graham v. John Deere Co.*, 383 U.S. at 17, 148 USPQ at 467. The following secondary considerations may be considered in determining non-obviousness; (1) long felt but unresolved needs, (2) unexpected results; (3) the invention’s commercial success, (4) the failure of others, (5) skepticism by experts, (6) praise by others, (7) teaching away by others, (8) recognition of a problem, (9) copying of the invention by competitors, and (10) other relevant factors. (see MPEP §2145).

The present invention solves a long felt but unresolved need in the art. That need is for a strong and sturdy hitch assembly that can be used to dislodge stuck vehicles and to tow vehicles, and which is safe and easy to use, and which will not fail under most circumstances. (See: Present Application at Background – page 1; Declaration of Vernon W. Sparkes at paragraphs 7-10).

Embodiments of the present invention solve and fulfill this long felt but unresolved need by providing a pivoting hitch assembly that is strong and lightweight, safer than conventional devices, inexpensive and simple in construction for ease of use. (See: Present Application at Summary – page 2-3; Declaration of Vernon W. Sparkes at paragraphs 11, 15-18). Several features of the claimed invention help achieve the benefits and advantages of the present pivoting hitch assembly. For example, the U-shaped clevis that is significantly wider than it is thick and hence substantially flat in cross section. Also, the wear plates at either end of the U-shaped clevis. In addition, the sling adaptor disposed on the U-shaped clevis. Further, the unique combination of the U-shaped clevis and/or the coupling tongue being comprised of aluminum in combination with a hitch pin comprised of steel.

Embodiments of the present invention also yield unexpected results. Embodiments having unexpected results include the unique combinations of materials for the various components of the hitch assembly. For example, in dynamic towing applications requiring high strength - steel is the

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material of choice. However, the inventors of the present invention unexpectedly discovered that for a hitch assembly designed and constructed in accordance with embodiments of the present invention, an aluminum assembly resulted in a higher failure load than a similar dimensioned unit of steel. One of ordinary skill in the art, as well as, standard engineering stress analysis would predict that the assembly constructed from steel would fail at a higher load than a unit made from aluminum. This contradictory result was further analyzed and found to most likely be attributed to the redistribution of stresses to the pin as a result of the lower elastic modulus of the aluminum (greater extension of the aluminum components verses that of steel) and the alteration of the loading on the pin due to a tongue made from a solid bar of aluminum which changes the failure mode on the pin from that of 100% shear failure - as occurs in the steel assembly - to one of combined bending and shear in the aluminum assembly. The combined shear and bending failure results in a higher load carrying capacity. These interactive changes of the specific material and configuration of the assembly were not expected nor predictable. Rather the combination resulted in an unexpected outcome, making the aluminum assembly much better in performance than expected. This in turn resulted in multiple other advantages of: being able to use the aluminum assembly for higher loads; giving lighter in weight; and not subject to corrosion and thus not requiring painting or other protective coatings. (See: Present Application at page 7, lines 16-27, and page 9, lines 10-27; Declaration of Dr. William J. D. Shaw at paragraphs 14-17; Declaration of Vernon W. Sparkes at paragraphs 12-14).

Further, the materials of certain embodiments of the invention, when first proposed, were met with skepticism by experts. For example, when inventor Shaw first proposed use of an aluminum material for the hitch assembly, Dr. Shaw indicated that he did not believe this was a good idea or that these materials were suitable for the proposed use. Testing proved Dr. Shaw skepticism to be wrong, and testing, analysis and further consideration demonstrated the unexpected benefits of use of these materials for this design. (See Declaration of Vernon W. Sparkes at paragraphs 12-14). Applicant believes that Dr. Shaw would be considered an expert in the field of engineering and failure analysis. (See Declaration of Dr. William J. D. Shaw at paragraphs 2-4).

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The unique design and construction of the pivoting hitch assembly, and the unique choice of materials for the hitch assembly components, has also led to commercial success. Evidence of commercial success is presented in the form of a list of customers (See Declaration of Vernon W. Sparkes at paragraph 16 and Exhibit A) as well as customer letters endorsing and praising the performance and design of the pivoting hitch assembly. (See Declaration of Vernon W. Sparkes at paragraph 16 and Exhibit B). These letters are just a small sampling of similar letters received from other customers and users of a commercial product (the Ditch Hitch® pivoting hitch assembly product) that embodies the invention. Further evidence of praise by others of skill in the art and of industry acceptance is the adoption of the Ditch Hitch® pivoting hitch assembly product into the Vehicle Recovery and Towing Guideline published by Enform Canada - Canada's safety association for Canada's oil and gas industry. (See Declaration of Vernon W. Sparkes at paragraph 17 and Exhibit C). The commercial success may be attributed to the claimed features of the pivoting hitch assembly, which as explained above, provide a lightweight yet strong hitch assembly, which is safe and easy to use, and which will not fail under most circumstances.

Lloyd does not disclose the unique clevis design and construction, or the unique combination of materials for the various components of the hitch assembly that result in an advantageously light weight and, unexpectedly, strong and sturdy design. For example, Lloyd simply discloses "the invention is typically made from steel, although other metals and materials having sufficient strength and durability may be used (See Lloyd at [0035]). The Powell and Klinkman references do not cure the deficiencies of Lloyd. The Powell reference merely discloses that its parts may be constructed from steel, a steel based alloy, a lightweight metal alloy (such as aluminum) or a rugged plastic material (Powell at col. 6, lines 25-30). As noted by the examiner in the Office Action, the Klinkman reference discloses its invention consists of an all steel assembly – several pieces of square tubing, a steel band, grade 8 bolts, and two 4140 stress-proof steel pins ¾ inches in diameter and 9 ½ inches long. (See Klinkman at col. 6, lines 44-47).

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For all the reasons provided above, withdrawal of the claim rejections under 35 U.S.C. §103(a) is requested.

New claims:

New independent claim 22 recites, in part:

a U-shaped clevis formed from a rectangular aluminum bar,
the U-shaped clevis comprising:

 a first clevis leg having a first clevis aperture in a first clevis end;

 a second clevis leg having a second clevis aperture in a second clevis end, the second clevis leg spaced apart from the first clevis leg;

 a curved end connecting the first clevis leg and the second clevis leg;

the U-shaped clevis being significantly wider than it is thick,
such that it is flat in cross-section;

 an open end formed between the first clevis end and the second clevis end;

 wherein the open end of the clevis is sized to receive the second end of the coupling tongue such that the first clevis leg and the second clevis leg overlie the top and the bottom of the coupling tongue, and the first clevis aperture, the hitch pin aperture, and the second clevis aperture are axially aligned;

a hitch pin comprised of steel extending through the axially aligned first clevis aperture, hitch pin aperture, and second clevis aperture, the hitch pin pivotally attaching the coupling tongue and the U-shaped clevis. (emphasis added).

As noted above, the highlighted features of the U-shaped clevis and the materials of the clevis and hitch pin are not disclosed or taught in any of the art of record, either alone or in combination. As such, new independent claim 22 is allowable over the art of record. New claims 23-26 dependent from claim 22 and therefore are also allowable.

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Support for new dependent claim 21 may be found, for example, at page 5, lines 19-23. Support for new independent claim 22 may be found throughout the disclosure, including for example, pages 4-9 and Figures 1-9. Support for new dependent claim 23 may be found, for example, at page 5, lines 19-20 and 25. Support for new dependent claim 24 may be found at page 5, lines 19-23; page 9, lines 18-19. Support for new dependent claim 25 may be found at page 4, lines 22-24; page 9, lines 18-19. Support for new dependent claim 26 may be found at page 6, lines 25-28; page 9, lines 19-21. Support for new dependent claim 27 may be found at page 6, line 25. It is submitted that no new matter has been added.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that the above-identified application is in condition for allowance. All of the stated grounds of rejection have been properly traversed, accommodated or rendered moot. Applicants, therefore, respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. There being no other rejections, Applicants respectfully request that the current application be allowed and passed to issue.

Reconsideration of the present Office Action and an early notification to this effect is respectfully requested. If the examiner has any questions regarding this response, the examiner is invited to contact the undersigned attorney at (215) 981-4405.

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AUTHORIZATION

No fee beyond the accompanying extension fee is believed to be due for this submission. However, the Commissioner is hereby authorized to charge any additional fees which may be required for this Amendment and Response, or credit any overpayment, to deposit account no. 50-0436.

Respectfully submitted,
Pepper Hamilton LLP

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